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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/559,065	04/28/2000	German Goldszmidt	YO999-479	3172

7590 06/27/2003

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EXAMINER

LIN, WEN TAI

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 06/27/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/559,065	<b>Applicant(s)</b> GOLDSZMIDT ET AL.	
	<b>Examiner</b> Wen-Tai Lin	<b>Art Unit</b> 2154	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 April 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                          | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)      | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. | 6) <input type="checkbox"/> Other:  |

### DETAILED ACTION

1. Claims 1-48 are presented for examination.
2. Pursuant to the draftperson's comments regarding Tables 1-5 (see the attached PTO-948), Applicant is reminded that the changes need also be reflected in the "Brief Description of the Drawings" section and correct all the renamed tables throughout the specification accordingly.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7, 13, 21, 40 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellesson et al.(hereafter "Ellesson")[U.S. Pat. No. 6459682] in view of Gossler et al.(hereafter "Gossler")[U.S. Pat. No. 5799173].

5. As to claims 1 and 47, Elleson teaches the invention substantially as claimed including a method for managing and controlling allocation and de-allocation of resources based on a guaranteed amount of resource and additional resources based on a best effort for a plurality of customers [e.g., col.2, lines 23-25 and 38-41], said method comprising:

- dynamically allocating resources for a plurality of customers, such that said resources received by a customer are dynamically controlled and said customer receives a guaranteed minimum amount of resources as specified under a service level agreement (SLA) [col.1, lines 49-55; col.2, line 66 - col.3, line 7; col.6, lines 28-38].

Elleson does not specifically teach that the resource includes server resource. However, Gossler teaches a method of dynamically allocating different number of servers as a means for controlling the speed of customer service [Gossler: Abstract]. Thus, it would be obvious to one of ordinary skill in the art that Elleson could have included the server resource-based service into SLA, because by doing so the SLA coverage could be expanded to area where servers are key elements of services [Elleson: col.1, lines 38-55; col.2, lines 38-41].

6. As to claim 2, Elleson teaches that the method further comprising: utilizing a performance metric to increase or decrease an inbound traffic to a customer [col.12, line 60 - col.14, line 9; note that the inbound traffic is the traffic on the ingress edge device as indicated in Figs. 1A and 1B].

7. As to claim 3, Gossler further teaches that the number of servers can be used as a parameter for optimal allocation, wherein optimal allocation of servers can be achieved by considering the available maximum number of servers and the minimum number of servers that is required to satisfy the SLA [Gossler: Abstract].

8. As to claim 4, Ellesson teaches that the method further comprising: utilizing performance metrics to control the allocation of additional server resources to a plurality of customers using bounds on given service level metrics [col.1, lines 48-52; col.5, lines 48-54].

9. As to claim 5, Ellesson teaches that the method further comprising: supporting a plurality of service level metrics [col.6, lines 3-15; i.e., bandwidth, delay and loss characteristics are in different service level metrics].

10. As to claim 6, Ellesson teaches that the method further comprising: selectively utilizing a plurality of different metrics for a plurality of different customers [col.6, lines 3-15 and 28-38].

11. As to claim 7, Ellesson further teaches utilizing a service level metric an amount of allocable resources, and an inbound traffic rate, for defining a state of a current service level (M,N,R) for each customer [col.5, lines 32-65; col.7, lines 17-38; note: in Ellesson's

terminology M, N and R can be equated to resource availability(or utilization), amount of resources, and pacing (at the ingress device) respectively].

12. As to claims 13, 21 and 40, since the features of these claims can also be found in claims 1-7, they are rejected for the same reasons set forth in the rejection of claims 1-7 above.

13. Claims 8-12, 14-20, 22-39, 41-46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elleson et al.(hereafter "Elleson")[U.S. Pat. No. 6459682], as applied to claims 1-7, 13, 21, 40 and 47 above and Gossler et al.(hereafter "Gossler")[U.S. Pat. No. 5799173], as applied to claims 1-7, 13, 21, 40 and 47 above, further in view of Choudhury et al.(hereafter "Choudhury")[U.S. Pat. No. 5719854].

14. As to claim 8, Elleson in view of Gossler fail to teach utilizing a target service level metric  $M_t$  to maintain an actual service level  $M$  substantially at or near a target service level so as to be guaranteed to fall between low and high bounds ( $M_{lowbound}$  and  $M_{highbound}$ ) specified in a service level agreement (SLA).

However, in the same field of endeavor Choudhury teaches utilizing high and low bounds to track the service so as to maintain the actual service level between the two bounds [Abstract; Fig.10].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the Choudhury's technique in Elleson and Gossler's

system because defining a target range (rather than a sharp target line) facilitates the adaptation of the system to environmental variations and making the expected performance achievable [Elleson: col.1, lines 37-48; col.5, lines 48-50].

15. As to claims 9-12, Choudhury further teaches:

- computing a target amount of resources  $N_t$  and an inbound traffic rate  $R_t$  from a given target service level metric  $M_t$  and based on the current service level (M,N,R) [e.g., Figs.3 and 6; col.10, line 66 - col.11, line 5 or Choudhury; note that in Choudhury's model the request arrival rate is an inbound traffic, while in Elleson's terminology, the inbound traffic is the monitored traffic at the ingress device. It is also obvious that Choudhury's model can be flexibly adjusted to evaluate different type of control parameters];
- performing at least one of a numerical analysis, a mathematical formulaic operation, an add-one/subtract-one, and a quick simulation for deriving a target amount of resources  $N_t$  and an inbound traffic rate  $R_t$  ) [Choudhury: col.6, lines 40-52; col.7, lines 35-38];
- supporting a resource utilization  $U$  for an actual service level  $M$ , average response time  $T$  for an actual service level  $M$ , and a response time percentile  $T\#$  for an actual service level  $M$ , thereby to support targets of utilization, average response time, and response time percentile [Choudhury: col.6, line 66-col.7, line 1; col.13, lines 21-36; note that the resource utilization can be derived from the free resource units  $F_i$  or the average capacity]; and

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- deciding whether or not to add a server resource or to reduce an inbound traffic rate to meet service level agreements for a plurality of customers [col.13, lines 48-64].

16. As to claims 14-20 and 22-25, since the features of these claims can also be found in claims 1 and 9, they are rejected for the same reasons set forth in the rejection of claims 1 and 9 above.

17. As to claims 26-27, Ellesson, Gossler and Choudhury further teach requesting a system resource manager to perform the resource allocation [Ellesson: 11B, Fig.1B]and requesting an inbound traffic controller to throttle an amount of inbound traffic to the plurality of customers [Ellesson: col.6, lines 32-38].

18. As to claim 28, Ellesson, Gossler and Choudhury do not specifically teach maximizing revenue potential when allocating resources beyond a minimum amount for a customer.

However, Choudhury teaches that various ways of calculating service cost [col.14, lines 17-51]. Since maximizing revenue is of interest to most business organizations, it is obvious to make use of Choudhury's cost formulation to maximize the revenue potential by maximizing the resource utilization, because by doing so the service gain tends to be higher.



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19. As to claims 29-30, Ellesson, Gossler and Choudhury do not specifically teach how to determine a unit of said resources being fixed size unit of comprising different amount of allocable or de-allocable resources. However, based on Choudhury's model (as described at col.13, lines 18-64), the variable  $b_{ij}$  (number of units in resource  $i$  required by each request of customer  $j$ ) can obviously be defined as a fixed or variable amount, depending on the requested service.

20. As to claims 31-39, 41-46 and 48, since the features of these claims can also be found in claims 1-30, they are rejected for the same reasons set forth in the rejection of claims 1-30 above.

As for the additional limitation in claims 31-39 and 48 requiring a record of "ICT-informed(i)" be maintained indicate whether throttling on inbound traffic is being applied or not: it is noted that "throttling on inbound traffic" is equivalent pacing the traffic coming into the ingress devices [Ellesson: col.6, lines 32-38] and the record could have been kept in the directory server [Ellesson: col.6, lines 50-52] and maintain updated because the latter is designed for storing the network state information.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Beshai [U.S. Pat. No. 6580721];

Vaid et al. [U.S. Pat. No. 6119235];

Koistinen et al. [U.S. Pat. No. 6154778];

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Miskowiec [U.S. Pat. No. 5915095]; and

Gai et al. [U.S. Pat. No. 6167445].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Tai Lin whose telephone number is (703)305-4875. The examiner can normally be reached on Monday-Friday(8:00-5:00) .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703)305-9678. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

(703)746-7239 for official communications;

(703)746-7238 for after final communications; and

(703)746-5516 for status inquires draft communication.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Wen-Tai Lin

June 27, 2003

*Wen-Tai Lin*  
6/27/03